Summary of Gamma Assay Systems:

- **TMI Systems**:

    - Fissile Material Detection System – Consists of two high rate NaI gamma detectors tailored for this application. The detectors were located in the TAN 607 warm shop near the FLT-2 filter of a water collection tank associated with the DWS and the sintered metal filters of the HVDS. The systems were calibrated to Eu152 to determine the concentration of Eu154, because it is an analytic indicator for the presence of U235 which is a fissile material. (Doug - when was this first used or deployed?)

    - Remote Assay System (RAS) - Comprised of a electronically cooled - high purity –fully shielded Germanium detector that was located in the TAN 607 hot shop. The detectors are to be remotely operated by the existing robotic arms present within the shop. Additionally, the electronic solid state cooling system decreased system downtime due to insufficient cooling which is a common problem with gamma detectors. (Doug – when was this first used or deployed?)

- **CPP-603 Systems: 3 Unit Basin Scanning System**

    - GFO/Rack Scanner – The system was deployed at the INTEC facility (CPP 603) to scan the 901 fuel racks in March 2001. A single detector was used to enter the cylindrical storage racks to determine the presence and location of fissile material within the containers. The detectors are collimated and shielded [NaI(TI) and CdZnTe] ?? incorporating a precise x,y,z positioning system for determining detector location. The system is sensitive enough to detect ½ gram of irradiated fissile material (fuel pellets) and is calibrated to detect Cs137, a fission product, which is an indicator for the presence of U235.

    - 3 Head Basin Floor Scanner – Similar to the above detector; however the system uses a 3 detectors mounted on a 3 tine fork with a scissor action that allows for large surface area scanning of the basin floor. This system will potentially be deployed in the summer of 2001.